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PTO/SB/21 (08-03)
Approved for use through 08/30/2003. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/082,375	
	Filing Date	02/25/2002	
	First Named Inventor	Bible	
	Art Unit	1762	
	Examiner Name	Tsoy	
Total Number of Pages in This Submission	36	Attorney Docket Number	018279.046956

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance communication to Technology Center (TC)
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
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<input type="checkbox"/> Response to Missing Parts/Incomplete Application	Brief on Appeal is submitted in triplicate.	
<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm or Individual name	Alexander P. Brackett	
Signature	<i>Alexander P. Brackett</i>	
Date	December 24, 2003	

CERTIFICATE OF TRANSMISSION/MAILING			
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This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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DEC 29 2003

PTO/SB/17 (10-03)

Approved for use through 07/31/2006. OMB 0651-0032

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 330

Complete if Known

Application Number	10/082,375
Filing Date	02/25/2002
First Named Inventor	Bible
Examiner Name	Tsoy
Art Unit	1762
Attorney Docket No.	018279.046956

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None
☒ Deposit Account:

Deposit Account Number

50-0976

Deposit Account Name

Greenebaum Doll & McDonald PLLC

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments☒ Charge any additional fee(s) or any underpayment of fee(s)☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1)			(\$) 0

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent Claims	-20** =	X	
Multiple Dependent	-3** =	X	

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 86	2201 43	Independent claims in excess of 3
1203 290	2203 145	Multiple dependent claim, if not paid
1204 86	2204 43	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent
SUBTOTAL (2)		

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Small Entity

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for <i>ex parte</i> reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	330
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 330

SUBMITTED BY

Name (Print/Type)	Alexander P. Brackett	Registration No. (Attorney/Agent)	41,630	Telephone	502/588-4016
Signature	<i>Alexander P. Brackett</i>	Date	12/24/2003		

(Complete if applicable)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Docket No. 018279.046956

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:

James Cannon Bible et al.

Serial No.: 10/082,375

Filed: 2/25/2002

For: SYSTEM AND METHOD OF COATING A CONTINUOUS LENGTH OF MATERIAL

Group Art Unit: 1762

Examiner: Tsoy, Elena

Brief on Appeal

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Real Party in Interest

The present application is assigned to Commonwealth Industries, Inc., 500 West Jefferson Street, Louisville, Kentucky 40202. The assignment is recorded in the United States Patent and Trademark Office at reel 012689, frame 0925.

Status of Claims

Claims 1-9 are the subject of this appeal. No other claims are pending. Claims 10-25 have been cancelled.

Status of Amendments

There have been no amendments filed in the instant application.

12/31/2003 MGEREM1 00000076 500976 10082375

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Summary of Invention

An apparatus for practicing the method of coating a continuous length of material recited in claims 1 and 2 is depicted in drawing Figure 1 of the instant application. The first embodiment of the present invention, as exemplified in claim 1, recites a novel process for the application of a coating to a continuous length of material in either metallic or non-metallic product applications.

In a first embodiment of the invention as claimed in claim 1, a method of coating a continuous length of material 1 comprises the steps of applying a tensile force to a portion of the continuous length of material 1, applying a coating such as an electron-beam curable coating to that portion of the material that is under tension, and curing the coating by exposure to radiation produced by an electron beam such that the coating is completely cured on the length of material 1 under tension prior to it being contacted by any physical element. See page 8 of the instant specification for a detailed description of the method.

In a second embodiment of the invention as exemplified in claim 2 of the instant application, the material is advanced, under tension through a coating system wherein an electron beam curable coating is applied thereto. The coating system is described in detail at pp. 10-12 of the specification of the instant application. Additionally, the step of applying an electron beam coating to the material is further detailed at pp. 10-12 of the specification, wherein the embodiments of the invention recited in claims 8 and 9 are described in detail. The coating step of the process of the present invention may further include the steps of washing, rinsing, drying, and applying a sealant to the material under tension, prior to the application of the electron beam curable coating.

Issues

Issue 1: Whether claims 1, 2, 4, 8 and 9 are patentable under 35 U.S.C. §103 over U.S. Patent No. 3,965,551 to Ostrowski (hereinafter Ostrowski) in view of U.S. Patent No. 6,306,468 to Maddox et al. (hereinafter Maddox).

Issue 2: Whether claims 3 and 5-7 are patentable under 35 U.S.C. §103 over Ostrowski

in view of Maddox et al. and further in view of U.S. Patent No. 6,103,317 to Asai et al. (hereinafter Asai).

Grouping of Claims

For each ground of rejection which appellant contests herein which applies to more than one claim, such additional claims, to the extent separately identified and argued below, do not stand or fall together.

The Argument

Issue 1 – Whether claims 1, 2, 4, 8 and 9 are patentable under 35 U.S.C. §103 over Ostrowski in view of Maddox et al.

Independent claim 1 recites a process for coating a continuous length of material comprising three steps: 1) applying tension to a portion of the material; 2) applying an electron-beam curable coating to that portion of material that is placed under tension; and 3) exposing the coated portion of material to an electron beam to cure the coating. Claims 2, 4, and 8 are dependent upon claim 1. Claim 9 is dependent upon claim 8.

The establishment of a *prima facie* case of obviousness under 35 U.S.C. §103(a) requires three basic criteria. Initially, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Secondly, there must be a reasonable expectation of success. Thirdly, the prior art references must teach or suggest each claim limitation. (See generally MPEP 2143). Furthermore, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Furthermore, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). This principle of

how to evaluate whether a *prima facie* case of obviousness has been made has been addressed many times by the Federal Circuit. In holding that the USPTO failed to establish a *prima facie* case of obviousness, the Federal Circuit has stated:

Obviousness cannot be established by combining the claimed teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

In the present case claims 1, 2, 4, 8 and 9 stand rejected under 35 U.S.C. §103(a) over Ostrowski in view of Maddox. The rejection of claims 1, 2, 4, 8 and 9 states that Ostrowski discloses a process for coating steel tubing under tension, while Maddox discloses coating the tubing with an electron beam curable coating and exposing the tubing to radiation from an electron-beam emitter to cure the coating. The grounds for rejection of claims 1, 2, 4, 8 and 9 also stipulate that Ostrowski fails to teach coatings that are curable by the application of electron beams.

The teachings of the Ostrowski patent relate generally to the application of polymeric coatings in liquid or powder form to metal tubing. (See Ostrowski at column 3, lines 22-45). Exemplary coatings taught in Ostrowski include both thermoplastic and thermosetting resins such as polyamides, polyvinylchlorides, polyesters, polyvinylidene chlorides, polyvinylacetates, butyrates, polyolefins, acrylics, and epoxies. (See Ostrowski at column 4, lines 1-14). However, Ostrowski contains no discussion or mention of electron beam curable formulas or compounds for use in coating the tube. Indeed the Ostrowski reference likely could not possibly have referred to electron beam curable coatings, since those coatings were not widely known at the time of filing of the Ostrowski application and further, since electron beam curable coatings are inherently incompatible with the conventional high temperature baking process used to cure coatings of the types disclosed in the Ostrowski reference. Accordingly, Ostrowski contains no teaching or suggestion regarding the use of electron beam curable coatings or electron beam radiation and the desirability of applying them in combination with a material under tension as

required by applicant's claims 1, 2, 4, 8 and 9.

Nor is there any such teaching or suggestion for the combination supplied by the Maddox reference to support a *prima facie* case of obviousness with respect to appellants' claim 1. The teachings of Maddox relate generally to a process of tube coating utilizing various electron beam curable coating compositions comprising difunctional unsaturated Acrylate aliphatic urethane oligimers having varying molecular weights. The steps involved in the Maddox process are detailed at column 5, lines 32-51 and include coil entry, tube formation, cleaning, rinsing, chemical pretreating, further rinsing, applying coating compositions as further specified, curing the coatings with electron beam equipment, and cutting the tube into lengths. The Maddox reference simply does not disclose, teach or otherwise contemplate placing a material to be coated under tension, nor does it suggest the desirability of combining a method of applying and curing electron beam coatings on a length of material under tension.

In fact, the Maddox reference contemplates the difficulties encountered in conventional powder coating tube applications but offers no solution therefor. At column 6, lines 1-11 Maddox discusses the implications of the high temperatures generated by the induction heaters required to cure prior art powdered coatings, such as those taught by Ostrowski. Maddox then states, in discussing prior art application of coatings: "The typical line speeds encountered with tube lines provide a very short dwell time to melt, flow and cure powder coatings, as a result the peak metal temperatures must be high. Tube flexing or bending can impair production or require more or special tube guides or rollers." (Maddox at column 6, lines 5-9). Maddox simply states that the difficulties of powder coating tube at elevated temperatures, for example the need for additional cooling time and a conveyor can be eliminated by practicing the invention. (Column 6, lines 41-44). Nowhere does Maddox teach or suggest the desirability of placing the tube to be cured under tension as required by applicant's claim 1.

In fact, the admission that powder coating requires "more or special tube guides or rollers" implies that some tube guides or rollers are required for the coating process contemplated by Maddox. This implication of Maddox actually teaches away from the invention of claim 1 which requires the material being coated to be under tension, rather than being guided by rollers.

Maddox teaches conventional methods of tube formation in combination with the application of electron beam curable coatings which requires the existence of rollers or conveyors for advancement of the tube, thus teaching away from the claimed invention. (See Maddox columns 5 and 6, lines 32- 54. The Federal Circuit has held that teaching away is antithesis of art suggesting that the person of ordinary skill go in the claimed direction, and that this is a *per se* demonstration of lack of *prima facie* obviousness. *In re Fine*, 873 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Accordingly, since there is no teaching or suggestion located anywhere in the prior art cited to modify the Ostrowski patent with the teachings of Maddox to arrive at the invention of claim 1 in the present application, the rejection of claims 1, 2, 4, 8 and 9 as obvious under 35 U.S.C. §103(a) is improper.

Furthermore, claim 8 of the instant application is dependent upon claim 1 and contains the further limitation that the step of applying a coating to the continuous length of material is further comprised of the following steps: washing the portion of said material under tension; rinsing the portion of said material under tension; drying the portion of said material under tension; and applying an electron beam curable coating to the portion of said material under tension. Thus claim 8 of the present application requires that the washing, rinsing, drying, and coating steps all be accomplished on a portion of said material under tension. In the rejection of claims 1, 2, 4, 8 and 9 the Ostrowski reference is cited as disclosing a process that further comprises washing, rinsing, and drying the tubing under tension prior to coating at column 2, lines 31-45. (See page 3 of the Office Action mailed September 25, 2003). Column 2, lines 31-45 of Ostrowski are reproduced below:

The continuous tubular form created by the tubeformer 12 advances directly to a welder 14 where the edges of the strip are joined by welding, preferably using a continuous resistance welder that is designed to keep the upset on the inside of the formed tubing at a minimum. After the welding is complete and scarfing of the outer surface in the welded region is effected, the tubing is passed to a

washing and pickling station 16 where cleaning and removal of oxides occur. This station may include an alkali wash for removing grease from the surface of the tubing, followed by rinsing and then acid treatment for pickling the surface, followed by a further rinse, all of which are well known in the prior art and described in the earlier-mentioned patents.

As can be seen from the above disclosure, no support can be found for the assertion relied on in the rejection of claim 8, namely that the washing, rinsing and drying steps are practiced on the tubing while it is under tension.

In fact, at column 3, lines 12-21 Ostrowski teaches that there is ample opportunity in the upstream portion of the production line, to support the tubing against sagging as a result of gravity and that the sizing and straightening rolls provide such support while moving the tube forward longitudinally. Furthermore, the final support 30 for the tubing downstream of the metal treating station 26 until it reaches the take-off assist device 44 is located just past the drying station 28. In other words, the support rollers 30 permit the tubing to be under tension between the rollers 30 and the take-off assist device 44. (See also Figure 1 of Ostrowski.) This is downstream of the cleaning 16, heating 18, galvanizing 20, cooling 22, metal treating 26 and rinse and drying stations 28. Based on this disclosure, the Ostrowski invention does not teach that the washing, rinsing and drying steps of the process occur under tension, but rather that the tubing is supported from gravitational sagging up to the point where the tubing is coated in a spray coating station 32.

Based on the foregoing, Ostrowski actually teaches away from applicant's claim 8 whereby the washing, rinsing and drying steps are all accomplished on a portion of material under tension. Furthermore, the limitations included in appellants' claim 8, namely washing, rinsing and drying the material under tension, is simply not taught by any prior art reference cited by the Examiner. For these reasons, the rejection of claim 8 and claim 9 which depend therefrom under 35 U.S.C. §103(a) is improper.

Issue 2 – Whether claims 3 and 5-7 are patentable under 35 U.S.C. §103 over Ostrowski in view of Maddox et al. and further in view of U.S. Patent No. 6,103,317 to Asai et al.

Claims 3 and 5-7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ostrowski in view of Maddox, and further in view of U.S. Patent No. 6,103,317 to Asai et al. However, appellants can find no teaching or suggestion to combine the disclosure of Asai with the teachings of Maddox and Ostrowski anywhere in the prior art cited. The Asai reference teaches a water-blocking composite applied to a central tension member of a cable or like strand, for the purpose of preventing water migration inside a fiber optic cable. (See generally column 3, lines 36-57, and Fig. 1). Optical fibers or wave guides are then applied over the water blocking composite coating in the manufacturing process, as depicted in Fig. 1.

While Asai does in fact disclose the use of radiation curing of water blocking coatings, it specifically states at column 2 lines 54-60: “The invention makes it possible to coat fibres (eg glass fibres: yarns: optical fibres), wires, or rods (eg cable tension members) or tubes (eg polymeric cable jackets or buffer tubes) or other articles in a rapid continuous process in which no solvents or water are required and where heat is not essential for melting or for inducing reactions.” However, the process of Ostrowski teaches the use of induction heaters for curing the coating compositions used therein, as well as solvents for the treatment of the tube. (See Fig. 1 of Ostrowski.) Additionally, Maddox also teaches the use of solvents and water for cleaning or treating the material to be coated prior to the application of electron beam curable coatings. (See column 5 lines 32-51 of Maddox.) Thus it would be counterintuitive to combine the teachings of Asai that no solvents or water are required, with the teachings of either Maddox or Ostrowski to arrive at the appellants’ claimed invention. For the foregoing reasons, the appellants contend that the rejection of claim 3 and claims 5-7 is improper. Additionally, since claim 3 and 5-7 all depend from claim 1, for the reasons set forth herein above with respect to claim 1, appellants believe the rejection of claim 3 and claims 5-7 to be improper.

Conclusion

For the extensive reasons advanced herein above, Appellant respectfully but forcefully contends that each claim in the present application is patentable. Therefore, reversal of all rejections is hereby courteously solicited.

Respectfully submitted,

A handwritten signature in black ink, reading "Alexander P. Brackett". The signature is written in a cursive, flowing style with a large initial 'A' and 'B'.

Alexander P. Brackett

Reg. No. 41,630

Tel.: 502/588-4016

Appendix

Pending Claims

1. A process for coating a continuous length of material comprising the steps of:

 applying tension to a portion of said continuous length of material;

 applying an electron-beam curable coating to the portion of said material under tension;

 and

 exposing the coated portion of said material to an electron beam to cure the coating

 applied thereon.
2. A process for coating a continuous length of material comprising the steps of:

 applying tension to a portion of said continuous length of material;

 advancing the portion of said continuous length of material under tension through a

 coating system;

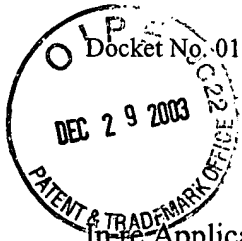
 applying an electron beam curable coating to the portion of said material under tension;

 and

 exposing the coated portion of said material to an electron beam to cure the coating

 applied thereon.
3. The process as claimed in claim 1 wherein said material is steel sheet.
4. The process as claimed in claim 1 wherein said material is steel tube.

5. The process as claimed in claim 1 wherein said material is steel cable.
6. The process as claimed in claim 1 wherein said material is non-metallic tube.
7. The process as claimed in claim 1 wherein said material is non-metallic cable.
8. The process as claimed in claim 1 wherein the step of applying a coating to said material is further comprised of the following steps;
 - washing the portion of said material under tension;
 - rinsing the portion of said material under tension;
 - drying the portion of said material under tension; and
 - applying an electron beam curable coating to the portion of said material under tension.
9. The process as claimed in claim 8 wherein the step of applying a coating to said material further comprises applying a sealant to the portion of said material under tension.



Docket No. 018279.046956

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

James Cannon Bible et al.

Serial No.: 10/082,375

Filed: 2/25/2002

For: SYSTEM AND METHOD OF COATING A CONTINUOUS LENGTH OF MATERIAL

Group Art Unit: 1762

Examiner: Tsoy, Elena

Brief on Appeal

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Real Party in Interest

The present application is assigned to Commonwealth Industries, Inc., 500 West Jefferson Street, Louisville, Kentucky 40202. The assignment is recorded in the United States Patent and Trademark Office at reel 012689, frame 0925.

Status of Claims

Claims 1-9 are the subject of this appeal. No other claims are pending. Claims 10-25 have been cancelled.

Status of Amendments

There have been no amendments filed in the instant application.

Summary of Invention

An apparatus for practicing the method of coating a continuous length of material recited in claims 1 and 2 is depicted in drawing Figure 1 of the instant application. The first embodiment of the present invention, as exemplified in claim 1, recites a novel process for the application of a coating to a continuous length of material in either metallic or non-metallic product applications.

In a first embodiment of the invention as claimed in claim 1, a method of coating a continuous length of material 1 comprises the steps of applying a tensile force to a portion of the continuous length of material 1, applying a coating such as an electron-beam curable coating to that portion of the material that is under tension, and curing the coating by exposure to radiation produced by an electron beam such that the coating is completely cured on the length of material 1 under tension prior to it being contacted by any physical element. See page 8 of the instant specification for a detailed description of the method.

In a second embodiment of the invention as exemplified in claim 2 of the instant application, the material is advanced, under tension through a coating system wherein an electron beam curable coating is applied thereto. The coating system is described in detail at pp. 10-12 of the specification of the instant application. Additionally, the step of applying an electron beam coating to the material is further detailed at pp. 10-12 of the specification, wherein the embodiments of the invention recited in claims 8 and 9 are described in detail. The coating step of the process of the present invention may further include the steps of washing, rinsing, drying, and applying a sealant to the material under tension, prior to the application of the electron beam curable coating.

Issues

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in view of Maddox et al. and further in view of U.S. Patent No. 6,103,317 to Asai et al. (hereinafter Asai).

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Issue 1 – Whether claims 1, 2, 4, 8 and 9 are patentable under 35 U.S.C. §103 over Ostrowski in view of Maddox et al.

Independent claim 1 recites a process for coating a continuous length of material comprising three steps: 1) applying tension to a portion of the material; 2) applying an electron-beam curable coating to that portion of material that is placed under tension; and 3) exposing the coated portion of material to an electron beam to cure the coating. Claims 2, 4, and 8 are dependent upon claim 1. Claim 9 is dependent upon claim 8.

The establishment of a *prima facie* case of obviousness under 35 U.S.C. §103(a) requires three basic criteria. Initially, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Secondly, there must be a reasonable expectation of success. Thirdly, the prior art references must teach or suggest each claim limitation. (See generally MPEP 2143). Furthermore, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Furthermore, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). This principle of

how to evaluate whether a *prima facie* case of obviousness has been made has been addressed many times by the Federal Circuit. In holding that the USPTO failed to establish a *prima facie* case of obviousness, the Federal Circuit has stated:

Obviousness cannot be established by combining the claimed teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

In the present case claims 1, 2, 4, 8 and 9 stand rejected under 35 U.S.C. §103(a) over Ostrowski in view of Maddox. The rejection of claims 1, 2, 4, 8 and 9 states that Ostrowski discloses a process for coating steel tubing under tension, while Maddox discloses coating the tubing with an electron beam curable coating and exposing the tubing to radiation from an electron-beam emitter to cure the coating. The grounds for rejection of claims 1, 2, 4, 8 and 9 also stipulate that Ostrowski fails to teach coatings that are curable by the application of electron beams.

The teachings of the Ostrowski patent relate generally to the application of polymeric coatings in liquid or powder form to metal tubing. (See Ostrowski at column 3, lines 22-45). Exemplary coatings taught in Ostrowski include both thermoplastic and thermosetting resins such as polyamides, polyvinylchlorides, polyesters, polyvinylidene chlorides, polyvinylacetates, butyrates, polyolefins, acrylics, and epoxies. (See Ostrowski at column 4, lines 1-14). However, Ostrowski contains no discussion or mention of electron beam curable formulas or compounds for use in coating the tube. Indeed the Ostrowski reference likely could not possibly have referred to electron beam curable coatings, since those coatings were not widely known at the time of filing of the Ostrowski application and further, since electron beam curable coatings are inherently incompatible with the conventional high temperature baking process used to cure coatings of the types disclosed in the Ostrowski reference. Accordingly, Ostrowski contains no teaching or suggestion regarding the use of electron beam curable coatings or electron beam radiation and the desirability of applying them in combination with a material under tension as

required by applicant's claims 1, 2, 4, 8 and 9.

Nor is there any such teaching or suggestion for the combination supplied by the Maddox reference to support a *prima facie* case of obviousness with respect to appellants' claim 1. The teachings of Maddox relate generally to a process of tube coating utilizing various electron beam curable coating compositions comprising difunctional unsaturated Acrylate aliphatic urethane oligimers having varying molecular weights. The steps involved in the Maddox process are detailed at column 5, lines 32-51 and include coil entry, tube formation, cleaning, rinsing, chemical pretreating, further rinsing, applying coating compositions as further specified, curing the coatings with electron beam equipment, and cutting the tube into lengths. The Maddox reference simply does not disclose, teach or otherwise contemplate placing a material to be coated under tension, nor does it suggest the desirability of combining a method of applying and curing electron beam coatings on a length of material under tension.

In fact, the Maddox reference contemplates the difficulties encountered in conventional powder coating tube applications but offers no solution therefor. At column 6, lines 1-11 Maddox discusses the implications of the high temperatures generated by the induction heaters required to cure prior art powdered coatings, such as those taught by Ostrowski. Maddox then states, in discussing prior art application of coatings: "The typical line speeds encountered with tube lines provide a very short dwell time to melt, flow and cure powder coatings, as a result the peak metal temperatures must be high. Tube flexing or bending can impair production or require more or special tube guides or rollers." (Maddox at column 6, lines 5-9). Maddox simply states that the difficulties of powder coating tube at elevated temperatures, for example the need for additional cooling time and a conveyor can be eliminated by practicing the invention. (Column 6, lines 41-44). Nowhere does Maddox teach or suggest the desirability of placing the tube to be cured under tension as required by applicant's claim 1.

In fact, the admission that powder coating requires "more or special tube guides or rollers" implies that some tube guides or rollers are required for the coating process contemplated by Maddox. This implication of Maddox actually teaches away from the invention of claim 1 which requires the material being coated to be under tension, rather than being guided by rollers.

Maddox teaches conventional methods of tube formation in combination with the application of electron beam curable coatings which requires the existence of rollers or conveyors for advancement of the tube, thus teaching away from the claimed invention. (See Maddox columns 5 and 6, lines 32- 54. The Federal Circuit has held that teaching away is antithesis of art suggesting that the person of ordinary skill go in the claimed direction, and that this is a *per se* demonstration of lack of *prima facie* obviousness. *In re Fine*, 873 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Accordingly, since there is no teaching or suggestion located anywhere in the prior art cited to modify the Ostrowski patent with the teachings of Maddox to arrive at the invention of claim 1 in the present application, the rejection of claims 1, 2, 4, 8 and 9 as obvious under 35 U.S.C. §103(a) is improper.

Furthermore, claim 8 of the instant application is dependent upon claim 1 and contains the further limitation that the step of applying a coating to the continuous length of material is further comprised of the following steps: washing the portion of said material under tension; rinsing the portion of said material under tension; drying the portion of said material under tension; and applying an electron beam curable coating to the portion of said material under tension. Thus claim 8 of the present application requires that the washing, rinsing, drying, and coating steps all be accomplished on a portion of said material under tension. In the rejection of claims 1, 2, 4, 8 and 9 the Ostrowski reference is cited as disclosing a process that further comprises washing, rinsing, and drying the tubing under tension prior to coating at column 2, lines 31-45. (See page 3 of the Office Action mailed September 25, 2003). Column 2, lines 31-45 of Ostrowski are reproduced below:

The continuous tubular form created by the tubeformer 12 advances directly to a welder 14 where the edges of the strip are joined by welding, preferably using a continuous resistance welder that is designed to keep the upset on the inside of the formed tubing at a minimum. After the welding is complete and scarfing of the outer surface in the welded region is effected, the tubing is passed to a

washing and pickling station 16 where cleaning and removal of oxides occur. This station may include an alkali wash for removing grease from the surface of the tubing, followed by rinsing and then acid treatment for pickling the surface, followed by a further rinse, all of which are well known in the prior art and described in the earlier-mentioned patents.

As can be seen from the above disclosure, no support can be found for the assertion relied on in the rejection of claim 8, namely that the washing, rinsing and drying steps are practiced on the tubing while it is under tension.

In fact, at column 3, lines 12-21 Ostrowski teaches that there is ample opportunity in the upstream portion of the production line, to support the tubing against sagging as a result of gravity and that the sizing and straightening rolls provide such support while moving the tube forward longitudinally. Furthermore, the final support 30 for the tubing downstream of the metal treating station 26 until it reaches the take-off assist device 44 is located just past the drying station 28. In other words, the support rollers 30 permit the tubing to be under tension between the rollers 30 and the take-off assist device 44. (See also Figure 1 of Ostrowski.) This is downstream of the cleaning 16, heating 18, galvanizing 20, cooling 22, metal treating 26 and rinse and drying stations 28. Based on this disclosure, the Ostrowski invention does not teach that the washing, rinsing and drying steps of the process occur under tension, but rather that the tubing is supported from gravitational sagging up to the point where the tubing is coated in a spray coating station 32.

Based on the foregoing, Ostrowski actually teaches away from applicant's claim 8 whereby the washing, rinsing and drying steps are all accomplished on a portion of material under tension. Furthermore, the limitations included in appellents' claim 8, namely washing, rinsing and drying the material under tension, is simply not taught by any prior art reference cited by the Examiner. For these reasons, the rejection of claim 8 and claim 9 which depend therefrom under 35 U.S.C. §103(a) is improper.

Issue 2 – Whether claims 3 and 5-7 are patentable under 35 U.S.C. §103 over Ostrowski in view of Maddox et al. and further in view of U.S. Patent No. 6,103,317 to Asai et al.

Claims 3 and 5-7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ostrowski in view of Maddox, and further in view of U.S. Patent No. 6,103,317 to Asai et al. However, appellants can find no teaching or suggestion to combine the disclosure of Asai with the teachings of Maddox and Ostrowski anywhere in the prior art cited. The Asai reference teaches a water-blocking composite applied to a central tension member of a cable or like strand, for the purpose of preventing water migration inside a fiber optic cable. (See generally column 3, lines 36-57, and Fig. 1). Optical fibers or wave guides are then applied over the water blocking composite coating in the manufacturing process, as depicted in Fig. 1.

While Asai does in fact disclose the use of radiation curing of water blocking coatings, it specifically states at column 2 lines 54-60: “The invention makes it possible to coat fibres (eg glass fibres: yarns: optical fibres), wires, or rods (eg cable tension members) or tubes (eg polymeric cable jackets or buffer tubes) or other articles in a rapid continuous process in which no solvents or water are required and where heat is not essential for melting or for inducing reactions.” However, the process of Ostrowski teaches the use of induction heaters for curing the coating compositions used therein, as well as solvents for the treatment of the tube. (See Fig. 1 of Ostrowski.) Additionally, Maddox also teaches the use of solvents and water for cleaning or treating the material to be coated prior to the application of electron beam curable coatings. (See column 5 lines 32-51 of Maddox.) Thus it would be counterintuitive to combine the teachings of Asai that no solvents or water are required, with the teachings of either Maddox or Ostrowski to arrive at the appellants’ claimed invention. For the foregoing reasons, the appellants contend that the rejection of claim 3 and claims 5-7 is improper. Additionally, since claim 3 and 5-7 all depend from claim 1, for the reasons set forth herein above with respect to claim 1, appellants believe the rejection of claim 3 and claims 5-7 to be improper.

Conclusion

For the extensive reasons advanced herein above, Appellant respectfully but forcefully contends that each claim in the present application is patentable. Therefore, reversal of all rejections is hereby courteously solicited.

Respectfully submitted,

A handwritten signature in black ink, reading "Alexander P. Brackett". The signature is written in a cursive, flowing style with a large initial 'A'.

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Appendix

Pending Claims

1. A process for coating a continuous length of material comprising the steps of:

 applying tension to a portion of said continuous length of material;

 applying an electron-beam curable coating to the portion of said material under tension;

 and

 exposing the coated portion of said material to an electron beam to cure the coating
 applied thereon.
2. A process for coating a continuous length of material comprising the steps of:

 applying tension to a portion of said continuous length of material;

 advancing the portion of said continuous length of material under tension through a
 coating system;

 applying an electron beam curable coating to the portion of said material under tension;

 and

 exposing the coated portion of said material to an electron beam to cure the coating
 applied thereon.
3. The process as claimed in claim 1 wherein said material is steel sheet.
4. The process as claimed in claim 1 wherein said material is steel tube.

5. The process as claimed in claim 1 wherein said material is steel cable.
6. The process as claimed in claim 1 wherein said material is non-metallic tube.
7. The process as claimed in claim 1 wherein said material is non-metallic cable.
8. The process as claimed in claim 1 wherein the step of applying a coating to said material is further comprised of the following steps;
 - washing the portion of said material under tension;
 - rinsing the portion of said material under tension;
 - drying the portion of said material under tension; and
 - applying an electron beam curable coating to the portion of said material under tension.
9. The process as claimed in claim 8 wherein the step of applying a coating to said material further comprises applying a sealant to the portion of said material under tension.